Morning Forecast Summary

Submitted by sgiangrande on Fri, 05/20/2011 - 16:03

- Central Facility

Operations ongoing at the time of the morning update as an approaching strong trough and associated surface features kick-started several impulses of precipitation over the Ponca City region late Thursday into Friday. This was the key forecasting challenge for this day with limited expectations for precipitation on subsequent days due to some scavenging of moisture and weak ridging to occur in advance of the next trough feature by early next week.

As suggested at the previous afternoon update, timing of the current precipitation was substantially faster - not well captured except by the latest of model solutions and already prompting an earlier mission scientists call for morning launch schedule. Here, previous evening dryline initiated cells propagating up and along a more northwardly tilting trough axis direction (as opposed to a more immediate eastward propagation) helped establish what became a more centrally located N-S squall-line over the campaign facilities - While some of these elements were suggested across the various models (NAM having timing, GFS having linear features), such an ideal situation for MC3E operations was clearly not well-established by any previous model run morphology. Nevertheless, both models still predicted substantial precipitation, and the knowledge of good moisture return and upper-level support timing was sufficient to get the basic story for the day's operations. Forecasters could have been left eating a bit of humble pie on such a difficult situation, but it should be noted that similar remnant convective dryline storms from the previous evening also redeveloped overnight in central Kansas limiting ER-2 take-off possibilities; These storms were relatively well-forecast to have significant impact on operations into early Friday. Rather fortuitously, there were not many forecast opinions that could have better maximized aircraft launch schedules under the circumstances.

This ejecting squall-line precipitation is expected to linger throughout most of the early afternoon into eastern Oklahoma. The timing and maturity of this system and associated cloud shield also should act to limit afternoon instability required for subsequent afternoon convection - mitigating cell initiation associated with the eventual trough leading edge passage - effectively hindering chances for secondary, quick-turnover afternoon Citation operations. Cells are not unlikely to fire should afternoon conditions clear, but should be limited and relatively short-lived for possible operations if firing in later afternoon.

The backside of the trough could bring some favorable conditions to jump-start isolated precipitation over north-central Oklahoma mid-Saturday associated with the upper-level jet max passage and remnant moisture, but otherwise clear conditions. The suggested quick approach of another substantial trough should bring incrementally better chances for precipitation through Wednesday of next week.

Forecasts

Time of Day:
Afternoon
Day 0:
05/20/2011
Forecast for Day 0:

Afternoon showers/convection possible if conditions clear associated with eventual passage of the surface boundary. While not unlikely and early, well-warned by local

NWS/SPC discussions, visible satellite conditions at the time of the forecast discussion and newer (12 UTC+) models / obs favored continued overcast conditions lingering through early afternoon with cells to the south and east sapping return flow; This is all all suggesting marginal opportunities over the SGP central facility for long-lived, convective cells and associated anvil development deemed necessary for an afternoon mission after an otherwise previously successful launch.

4pm Update Note: Cells have made a few attempts thusfar, but none have lasted in any substantial manner. Likelihood for cells over campaign site diminishing.

Day 1:
05/21/2011
Forecast for Day 1:

Challenging forecast window made simpler by the opportunities for post-event land-surface characterization mission under clear sky conditions. Basic model disagreement between NAM and GFS for precipitation associated with the backside of the trough progressing over the central facility region mid-afternoon. Local NWS Forecast suggests no threat for precipitation and limited clouds, wherein these relatively clear conditions are favorable for land-surface missions. NAM has been consistent in previous runs to 18 UTC maintaining this light precipitation over north central Oklahoma; Any such precipitation may limit said land-surface mission, but allow other flight opportunities. Flight plans should include note of precipitation towards Nebraska if returns scheduled for after 21 UTC.

Day 2:
05/22/2011
Forecast for Day 2:

Incrementally increasing opportunity for precipitation on two fronts, Oklahoma and Colorado. Colorado options appear weaker at this time, but consistent light precipitation forecast for mid-afternoon. Oklahoma option would appear to be more of the sort late afternoon convection firing providing moisture return in advance of an advancing trough and should require additional looks at subsequent forecast updates. Low confidence in models at this distance to trigger such a convective event.

Extended Outlook:

Increasingly better chances for campaign-beneficial precipitation through Wednesday. Both Colorado and Oklahoma have solid options according to current runs of the GFS out to Tuesday.